CENTRE FOR ECONOMIC RESEARCH

WORKING PAPER SERIES

1999

The Kids are Alright?
An Analysis of Child Benefit Using Irish Data

David Madden, University College Dublin

Working Paper
WP99/26

November 1999

DEPARTMENT OF ECONOMICS
UNIVERSITY COLLEGE DUBLIN
BELFIELD DUBLIN 4

The Kids Are Alright: Who Benefits from Child Benefit? An Analysis Using Irish Data

David Madden
(University College Dublin)

Presentation to Irish Economics Association Annual Conference, March 2000

Abstract: Child benefit is a universal payment to all households with children in Ireland. Unlike other transfers however it is paid to the mother. This paper analyses expenditure patterns out of this transfer payment and compares them to expenditure patterns from other sources of income using the Irish Household Budget Survey. This throws light on within household resource allocation and also on the extent to which households treat different sources of income differently.

Keywords: Child benefit, intrahousehold, targeting.

JEL Code: D12, J13.

I gratefully acknowledge Central Statistics Office – Household Budget Survey Anonymised as the source of the data used in this paper. I would like to thank Kevin Denny, Patrick Honohan and participants at a Foundation for Fiscal Studies seminar for helpful comments. I remain responsible for any errors

The Kids are Alright? Who Benefits from Child Benefit? An Analysis Using Irish Data

1. Introduction:

Child Benefit in Ireland is unlike most other transfer payments in two respects. First, it is a universal non means-tested payment made to all families with children. Children are defined as normally living with, and being supported by, their parents/guardian and aged under 16 or else aged 16, 17 or 18 and in full-time education or physically or mentally disabled. The second unusual feature regarding child benefit is that it is normally paid to the child's mother or step-mother. If the child does not live with the mother or step-mother, then it may be paid to the child's father or step-father who is living with and supporting the child.

The combination of these two factors implies that analysis of child benefit and the pattern of expenditure from child benefit can throw light on a number of features of interest. The first of these concerns the issue of within household allocation. Much economic analysis treats the family as the unit of measurement and little attention is paid to the allocation of resources within the household. This is the so-called "unitary" model of household decision-making. In recent years alternative models of household decision-making have appeared, the "collective" model, which allow for different interests within the household so that ownership of income may affect the pattern of its use (see Chiappori, 1992 and Browning et al., 1994). Since child benefit is paid to the mother then analysis of how it is spent may shed light on the degree to which ownership of a source of income may affect its use. Lundberg, Pollak and Wales (1997) show how in the UK a change in the payment of child benefit from fathers to mothers led to increased expenditure on children's clothing (although at the same time the form of payment changed from a tax credit to a direct payment, so it is difficult to discriminate between the effects of the two different changes). In a similar vein Phipps and Burton (1998) show the different influence of male and female incomes on patterns of household expenditures. They find that an extra unit of female income is more likely to be spent on childcare or children's clothing than is an extra unit of male income.

The second feature of interest concerns expenditure patterns according to different sources of income. There is some evidence from the US that expenditure out of certain

sources of income e.g. AFDC welfare payments, differs from that from other income sources (see Haveman and Wolfe, 1995). For example, Del Boca and Flinn (1994) show that propensities to spend on children's goods differ for child support and alimony payments compared to general income. Knox (1996) shows that child support payments appear to have a greater effect on children's educational attainment than other sources of income. This contradicts the idea that "a dollar is a dollar is a dollar" since there seems to be no a priori reason why labelling should affect the uses to which money is put. It could be argued that the results of Del Boca and Flinn and Knox are due to the fact that there will be a high degree of monitoring of the spending of child support payments by the payer (the parent who is not awarded custody of the child). This will not be the case for child benefit where the payer is the state. Should we observe that spending out of child benefit differs from spending from other sources of income, then the nature of this difference may indicate the extent to which this targetted benefit is fulfilling its aim. For example, if the propensity to consume "child-intensive" goods such as food or children's clothing is higher from child benefit than other sources of income then it seems reasonable to infer that children do gain disproportionately from child benefit. The universality of child benefit lends itself in particular to the analysis of this issue since it implies that apart from the obvious difference of having children, families receiving child benefit should be reasonably representative of the population at large.

This may have important policy implications. Say, for example, governments regard spending on children's education as a "merit" good, something which they wish to encourage. They could choose to directly put resources into children's education by building bigger and better equipped schools or hiring more teachers. Or they could choose to give a payment to parents which is intended to be spent on children's education. The problem with the latter approach of course is that there is no guarantee that the payment will be spent on children's education and not on other non-merit goods, unless the labelling of a source of income affects expenditure patterns from that source of income.

Rottman (1994) has examined some of these issues for Ireland. He uses a sample of 625 households who were part of a follow-up to a major survey carried out by the Economic and Social Research Institute in 1987. He finds that the source of income appears to be important from the point of view of sharing of resources. Households with income derived mainly from social welfare sources share about 33% of their income compared with an

average of about 63% for other households. With regard to child benefit households appear to divide fairly evenly between those who use it for general household spending and those who use it for child specific goods. That breakdown is sensitive however to who controls the spending of child benefit. Where it is jointly controlled there is a significantly lower proportion spent on children's goods as opposed to the case where the wife controls child benefit. He also finds that when asked how a windfall increase of £20 per month in household income would be spent, 18% of wives listed children's clothing as a priority as opposed to 10% of husbands. The analysis in this paper provides an alternative methodology for analysing similar issues to those of Rottman and the results make an interesting comparison.

Although we have discussed intrahousehold allocation of resources and differential spending patterns from different sources of income as though they are two separate issues, it is likely that they are related. A transfer payment such as child benefit is paid to families with children since it is presumably intended to improve the welfare of children (we discuss this further below). It is paid to the mother since it is believed that this increases the probability that it will "hit" its target i.e. there is a higher probability that the mother will spend the transfer on child-intensive goods than is the case with the father. But this presumes that following the payment there is no adverse (from the point of view of the child) intrahousehold resource reallocation. Thus targetted payments and within household resource allocation are closely related.[1] In particular, the extent to which intrahousehold resource reallocation takes place can make a difference in terms of who ultimately benefits from a programme relying on an indicator such as the presence of children to target transfers.

It may also be the case that child benefit is particularly intended to address child poverty. In this paper we examine the extent to which child benefit combats child poverty by analysing whether the extent to which children do better out of child benefit is independent of total resources.

We propose to analyse this issue by examining expenditure patterns on goods which are clearly assignable as "children's goods". By examining expenditure patterns on these goods from different sources of income, we can estimate the extent to which child benefit hits its target. We also examine how the "accuracy" of child benefit differs according to family

resources. We analyse this issue using the Irish Household Budget Surveys of 1987 and1994. These are nationally representative surveys carried out at seven year intervals and which collect a variety of information concerning the consumption patterns, income and demographic characteristics of in excess of 7000 households.

The layout of the remainder of the paper is as follows: in section 2 we describe our methodology in more detail and present and discuss our results. In section 3 we examine whether our results differ according to gender and in section 4 we present concluding comments.

2. Methodology

We propose to analyse how the accuracy of targetted child benefits differs by household income by examining a variety of Engel curves. The Engel curve gives the relationship between expenditure on a good and some underlying measure of household resources (typically income or expenditure) conditional on other household characteristics. Thus a very general specification for an Engel curve is $x_i^h = f(M^h; Z^h)$ where x_i^h is expenditure by household h on good i, M^h is household income/expenditure (we discuss which of these measures is preferable below) and Z^h is a vector of relevant household characteristics.

We propose to examine Engel curves for goods which are clearly assignable as children's goods. Household based surveys typically give total household expenditures on a variety of goods but it is usually impossible to infer the consumption of any individual member. By "assignable" we mean a private good for which we can observe individual consumption. We will examine Engel curves for children's clothing (we have information on boy's and girl's clothing). Strictly speaking children's clothing is not an assignable good since in the case of more than one child of either gender it may not be possible to infer which child is consuming.[2] We will examine Engel curves on these goods for different component parts of household resources e.g. total household expenditure, child benefit and also disposable income of individual parents/guardians. We also examine how it differs across the distribution of expenditure by repeating our analysis for different quartiles of expenditure.

---

[1] See Haddad and Kanbur (1992).

[2] It is also possible that a small adult might purchase children's clothing for themselves and not report it as adult clothing.

We are then in a position to examine whether the degree to which child benefit distributes resources towards children is sensitive to total household resources.[3]

Before discussing our Engel curve specification we discuss the appropriate measure of household resources to use. The choice is between total household expenditure and disposable household income. Broadly the issues are as follows: certain components of income are difficult to measure e.g. income from self-employment. Perhaps more importantly cross-section studies typically provide income measures which are snapshots in time and thus take no account of the difference between transitory and permanent income. Since consumption/expenditure decision are usually made with reference to permanent income then expenditure measures may be preferable. However, such measures also have drawbacks. Expenditure on items such as alcohol and tobacco are typically under-reported. Also, as discussed below, expenditure over a two-week period may not be a reliable measure of consumption, particularly for mature households who may have a large stock of durables from which they derive services.

However a further problem specific to our data is that income observations are "top-coded" i.e. values of income in excess of £800 per week are simply entered as £800 per week. Thus the distribution of income is censored on the right hand side at a value of £800. This causes problems both when estimating Engel curves since higher spending on a good may be observed even though income is fixed at £800. One way around this problem is to find an appropriate instrument for income and then use predicted income rather than actual income for the calculation of Engel curves based on incomes (the problem does not arise for expenditure). Thus given appropriate instruments for income we can carry out a Tobit regression of income on these variables (reflecting the censoring of income at £800) and then use predicted income from this Tobit. However, since the obvious candidate as an instrument for income is expenditure, it seems more sensible to simply use expenditure as the basis for estimating Engel curves. Our expenditure measure is total expenditure excluding repayments of loans other than house purchase mortgages, savings and taxes. It includes the value of home grown food consumed.

[3] It could be argued that childen's clothing is not an ideal assignable good, since informal networks between related families in terms of handing on children's clothing may distort the relationship between consumption of clothing and recorded expenditure on clothing. We carried out the same analysis for milk, which while not directly assignable, is presumably a good which is intensively consumed by children. The qualitative results were practically identical.

Since our analysis is based primarily upon comparison of Engel curves out of total household resources and child benefit, our specific choice of Engel curve is important. As our principal specification we choose probably the simplest form of Engel curve, where spending on children's clothing is a linear function of total household spending, child benefit, demographic variables and a dummy variable for 1987 (our data is pooled data from 1987 and 1994). Thus $x_{cl}^{h} = a_0 + a_1 M + a_2 CB + a_3 NUMAD + a_4 NUMKID + a_5 D_{87}$ where x_{cl}^{h} is the expenditure by household h on children's clothes, M is household resources, CB is child benefit, NUMAD is the number of adults in the family, NUMKID is the number of children and D_{87} is a dummy variable for 1987. The core of our analysis then is testing the proposition that $a_1 = a_2$. Note that a specification such as the one above assumes that Engel curves for children's clothing estimated on all households are linear out of all sources of income. This then implies that the marginal propensity to spend on children's clothes out of a given source of income is independent of income. If the Engel curve is convex then the MPC is increasing in income while if it is concave it is decreasing.

If we adopt the specification for Engel curves suggested by Working and Leser (henceforth WL), where the budget share of a good is dependent upon the log of total expenditure, i.e. $w_i = a + b \log M$, then linearity of the Engel curve implies that the coefficient on the log of total expenditure is zero, since it implies that the budget share allocated to that good is independent of total spending.[4] A positive coefficient implies that the good is a luxury while a negative coefficient implies it is a necessity.[5]

When choosing the WL specification for this study the comparison of the coefficients on total expenditure and child benefit is complicated slightly. Given a W-L Engel curve of the type $w_{cl}^{h} = a_0 + a_1 \log M + a_2 \log CB + a_3 NUMAD + a_4 NUMKID + a_5 D_{87}$, then the marginal impact of total expenditure and child benefit respectively upon the budget share is given by $\frac{\partial w_{cl}^{h}}{\partial M} = \frac{a_1}{M}$ and $\frac{\partial w_{cl}^{h}}{\partial CB} = \frac{a_2}{CB}$ respectively. Since M always exceeds CB, a finding

[4] This specification has the advantage that it has a basis in utility theory unlike the more *ad hoc* linear and log specifications.

[5] Note we are assuming that WL Engel curves are "linear" in the sense that we are not including higher order terms in expenditure (in which case goods can be necessities at some levels of income and luxuries at others (see Blundell and Duncan (1998) and Blundell, Pashardes and Weber (1993).

that a_2 exceeds a_1 must imply a stronger marginal effect of child benefit on the budget share of children's clothing.

An attractive specification which is consistent with the WL Engel curve and yet permits direct comparison of the marginal impact of total expenditure and child benefit is

$$w_{cl}^h = a_0 + a_1 \log(M + a_2 CB) + a_3 NUMAD + a_4 NUMKID + a_5 D_{87}.$$

In this case the marginal impacts of total expenditure and child benefit are $\frac{\partial w_{cl}^h}{\partial M} = \frac{a_1}{M + a_2 CB}$ and $\frac{\partial w_{cl}^h}{\partial CB} = \frac{a_1 a_2}{M + a_2 CB}$. Since the denominators are the same, the test for a stronger impact of child benefit is the test that $a_2 > 1$ (alternatively if $a_1 < 0$ we test that $a_2 < -1$).[6]

Thus in general there are three specifications we can examine: there is the very basic Engel curve which is linear in total spending and child benefit and demographic dummies, there is the basic WL specification and there is the "non-linear" version introduced above. We will present results for all three specifications.

We now give the relevant summary statistics for the households we analyse. Out of a total sample of 15582 households (7705 from 1987 and 7877 from 1994), there are 6650 with children of whom 6606 who are in receipt of child benefit.[7] Table 1 lists the number of children in the relevant households, while table 2 gives summary information regarding total expenditure, spending on children's clothes etc.

Table 1: Number of Children for Households with Children

Number of Children	Number	%
1	2126	32.18
2	2173	32.89
3	1371	20.75
4 or greater	936	14.18
Total	**6606**	**100**

[6] I am grateful to Kevin Denny for this suggestion.

[7] For the purposes of our analysis here we only consider children aged 14 or less. This is because it is possible that a reasonable number of children aged over 14 would purchase adult clothing and so we cannot accurately assign a good to them.

Table 2: Summary Statistics for Households with Children (N=6606, IR£1994)

Mean (st. dev)	1 Child	2 Children	3 Children	>3 Children
Childrens Clothing (Budget Share)	0.013 (0.027)	0.021 (0.036)	0.025 (0.037)	0.031 (0.045)
Total Expenditure	346.66 (203.88)	336.21 (184.99)	339.73 (194.70)	336.48 (187.27)
Child Benefit	6.93 (3.61)	10.65 (3.40)	15.15 (3.74)	22.32 (4.30)

There are a number of features of tables 1 and 2 worth noting. First, the majority of households (over 65%) have only one or two children. Secondly, as we would expect the budget share for children's clothing is increasing in the number of children. There is remarkably little variation in average total expenditure across families with different numbers of children. However, when carrying out analysis across different households it is customary to adjust the resources available to each household to take account of varying size and composition. There is an extensive literature on the appropriate choice of equivalence scale (see Lewbel, 1999, for a recent discussion) and the one we employ is a scale which has been widely used in various studies in the EU. It is the same as scale "C" used by Callan et al (1996) and is also used by O'Neill and Sweetman (1998). The weights are 1 for the first adult in the household, 0.7 for additional people aged over 14 and 0.5 for people aged less than 14. Table 2A replicates table 2 except that we now [present results for equivalised expenditure and equivalised child benefit.

Table 2A: Summary Statistics (with Equivalence Scale applied) for Households with Children (N=6606, IR£1994)

Mean (st. dev)	1 Child	2 Children	3 Children	>3 Children
Equivalised Expenditure	122.63 (70.41)	110.48 (59.42)	96.99 (55.52)	79.97 (43.46)
Equivalised Child Benefit	2.38 (0.79)	3.44 (0.64)	4.29 (0.62)	5.17 (0.68)

When applying this equivalence scale we find that larger families on average have less resources per equivalent adult. Finally table 2A shows that equivalised child benefit rises

with family size. This is because child benefit will rise commensurate with the number of children, while each additional child adds only 0.5 to the number of equivalent adults. For the analysis in this paper we use non-equivalised total expenditure and child benefit measures but qualitatively the results are the same with equivalised data (and are available upon request from the author).

However, for many of our households we do not observe any purchase of children's clothing. This is the issue of "infrequency of purchase" which is quite a common occurrence in data sets such as the HBS where households are asked to record their expenditure over a certain period of time. For goods which can be regarded as durable or semi-durable it is possible that during that period of time no purchases are observed although of course the household is still consuming the services of the good in question. Thus the figures in table 1 for budget share are almost certainly downward biased. The relevant summary statistics for those households who are observed to purchase children's clothing are given in tables 1A and 2A. There are 3233 households for whom no purchase of children's clothing is observed thus leaving 3373 in tables 1A and 2B.

Table 1A: Number of Children for Households with Children who Purchase Children's Clothing

Number of Children	Number	%
1	802	23.78
2	1157	34.30
3	809	23.98
4 or greater	605	17.94
Total	**3373**	**100**

However, this sample of 3373 households also may not be representative for a further related reason. It could be argued that households that are observed to purchase children's clothing during the period for which the HBS records are kept are likely to be houses which on average purchase children's clothes more frequently. If this arises because they are households with a greater preference for children's clothes then the budget share figures in table 2A may be biased upward. An alternative way to express this is that households may not be randomly allocated into those who are observed to purchase and those who are

observed not to purchase i.e. there is *selection bias* in terms of those households observed to purchase children's clothing.

Table 2A: Summary Statistics for Households with Children Purchasing Children's Clothing(N=3373, IR£1994)

Mean (st. dev.)	1 Child	2 Children	3 Children	>3 Children
Childrens Clothing (Budget Share)	.034 (.035)	.039 (.041)	.043 (.039)	.048 (.048)
Equivalised Total Expenditure	133.35 (72.21)	123.16 (61.76)	105.16 (57.71)	87.70 (46.28)
Equivalised Child Benefit	2.45 (0.81)	3.44 (0.64)	4.29 (0.61)	5.17 (0.67)

This raises important issues regarding which is the appropriate sample to use for econometric analysis. The use of the complete sample of 6606 households with about 50% of the sample recording zero consumption of children's clothing is almost certainly not appropriate since it seriously under-records consumption for these households. So are we entitled to use the abbreviated sample of 3373 households? We carried out the econometric analysis for the abbreviated sample on its own and also for the complete sample treating the zeros as missing observations and controlling for selection bias via the well-known Heckman twostep procedure.[8] In no case was the coefficient on the selection bias term significant and there was very little difference between the coefficients on the other variables regardless of whether or not we corrected for selection bias. This indicates that selection bias is not a problem and so for the remainder of this paper the analysis is carried out for the sample of 3373 households observed to purchase children's clothing.

One problem which arises when carrying out the analysis for child benefit is the difficulty of identifying the separate effects of child benefit and that of more children. We have pooled data from 1987 and 1994, thus there is variation in child benefit from both a time-series and cross-section source. However, the variation from the cross-section source arises from having more children, which in itself would tend to affect spending on children's clothing. We can control for this in one of two ways, either by having the number of children (and the number of adults) as additional right-hand side regressors or by carrying

[8] These results are available on request from the author.

out the analysis conditional on the number of children aged less than 14. In the former case there is a risk of multicollinearity, since the number of children and total child benefit are obviously highly correlated. In the latter case, there is no-cross-section variation and we are relying solely upon time-series variation to identify the effect of child benefit. Thus for the analysis out of child benefit we carry out separate analysis for the results are the same and thus we are reasonably confident that the results reported are robust. Table 3 gives the simplest form of Engel curve where spending on children's clothing is regressed against total expenditure, child benefit and dummies for number of children, number of adults and 1987 are included. We also include the F test for the equality of coefficient between total expenditure and child benefit families with one, two, three and greater than three children. It turns out that qualitatively

Table 3: Engel Curves for Children's Clothing from Total Expenditure and Child Benefit

Dep Var=Exp on Children's Clothing	**N=3373**	**N=802**	**N=1157**	**N=809**	**N=605**
No. Children	n.a.	1	2	3	>3
Total Exp.	.0246284**	.0144656**	.0221036**	.0235034**	.0437158**
	(.002233)	(.0022227)	(.0032266)	(.0059695)	(.0061207)
Child Benefit	.4730928**	.1506673	.7097081**	.2722643	.2065745
	(.1134275)	(.165722)	(.2167135)	(.2308851)	(.1416071)
No. of Children	-53.41707	-	-	-	-
	(56.06511)				
No. of Adults	-106.4993**	29.90357	-154.6524**	-24.54476	-130.5345
	(36.7645)	(52.28374)	(59.05526)	(81.38566)	(100.7451)
1987	-179.9082**	-263.1602**	-121.7038	-119.9415	-404.1962*
	(55.29588)	(87.27688)	(78.87822)	(135.2183)	(194.2891)
F Test	15.80**	0.68	10.14**	1.18	1.34

The results are supportive of the idea that children do better out of child benefit than out of total expenditure in the sense that the MPC on children's clothing is greater and this difference is statistically significant. When estimating conditional on the number of children the effect is less pronounced (except for the case of two children). In the other cases the difference in coefficient size is in the expected direction but is not statistically significant.

What about the WL Engel curves? In table 4 we present estimates for the conventionally estimated WL curves i.e. linear estimation with total expenditure as the denominator for the budget share term and in table 5 we present estimates for the "non-linear" version.

Table 4: Working-Leser Engel Curves for Children's Clothing from Total Expenditure and Child Benefit

Dep Var=Budget Share for Children's Clothing	**N=3373**	**N=802**	**N=1157**	**N=809**	**N=605**
No. Children	n.a.	1	2	3	>3
Total Exp. (log)	-.0112508** (.0014343)	-.0126309** (.0025368)	-.0133892** (.002584)	-.0138555** (.0025953)	.0001172 (.0041097)
Child Benefit (log)	.0139269** (.0026807)	.0057106 (.0032248)	.0302383** (.0074688)	.0194971 (.0103925)	.0145944 (.0096829)
No. of Children	-.0011704 (.0011925)	-	-	-	-
No. of Adults	-.0026474** (.0006867)	-.0009417 (.0012833)	-.0061806** (.0016576)	-.0025513 (.0017644)	-.002907 (.0022251)
1987	-.0026558 (.0016534)	-.0054396* (.0025832)	.0033399 (.0029886)	.0019821 (.004765)	-.0083138 (.0057267)
F Test	66.89**	23.83**	28.14**	10.21**	2.28

These results are in agreement with those in table 3. For the linear version of the WL Engel curve, the coefficient on child benefit is higher than that for total expenditure and in all cases the difference is statistically significant. Note also that the negative coefficient on total expenditure suggests that children's clothing are a necessity out of total expenditure and a luxury out of child benefit. The results for the non-linear version in table 5 are not as clearcut, but in general they are supportive of those in table 4. Recall that in this case, given that the coefficient on total expenditure is always negative, we require that the coefficient on child benefit be negative and greater than one. The difference in coefficients is always in the expected direction (except for the case of greater than three children) but only where there are two and three children is the value for the F test significant.

Table 4: "Non-Linear" Working-Leser Engel Curves for Children's Clothing from Total Expenditure and Child Benefit

Dep Var=Budget Share for Children's Clothing	**N=3373**	**N=802**	**N=1157**	**N=809**	**N=605**
No. Children	n.a.	1	2	3	>3
Total Exp. (log)	-.0093973** (.0018679)	-.0150202** (.0030365)	-.0093111** (.00164)	-.00825** (.0028928)	-.0035699 (.0090426)
Child Benefit (log)	-.9812108 (5.147167)	-.2395666 (8.388314)	-5.677372** (.9045437)	-5.797414 (4.899982)	20.48299 (116.3907)
No. of Children	.0045433** (.000734)	-	-	-	-
No. of Adults	.0000695 (.0004975)	.0013817 (.0007317)	-1.32e-06 (.0007915)	.0006608 (.0009828)	-.0030774 (.0018782)
1987	-.0056343** (.0011747)	-.0066104** (.0018872)	-.0049157** (.0018893)	-.0018805 .0023414	-.0115042 (.0039382)
F Test (co-eff on child benefit=1)	0.02	0.76	4.68**	4.80**	-21.48

So far our results are supportive of the idea that children do better out of child benefit than they do out of total expenditure. But is this effect uniform across the distribution of expenditure? This is particularly relevant if child benefit is intended as a means of relieving child poverty, since the presumed intention is that children in poor households should gain from child benefit. In table 6a-6c we replicate the analysis of tables 3-5 for different quartiles of the distribution of equivalised expenditure. These tables suggest that the differences in coefficients between total expenditure and child benefit are greatest at the highest quartile. The results are slightly different depending upon whether we use the simple Engel curve or the WL version. Both the linear and non-linear versions of the WL curve show a significant difference between the coefficients for the second and fourth quartile, while the simple version also shows a significant difference at the first quartile. In no cases were the coefficients different for the third quartile. Thus the results here suggest that

children benefit from child benefit proportionately more in richer households. However, this finding should be interpreted with caution. While children in better off families may do relatively better from child benefit than those in poor families this does not imply that children in poor families do not gain from child benefit, nor that it does not alleviate child poverty in these families. It may also be the case that child benefit is spent differently in poorer households, perhaps upon non-assignable goods which are still consumed relatively intensively by children.[9]

As outlined above our results can be explained on the basis that family resources are not pooled and that the specific person receiving a given source of income will affect spending patterns. Alternatively, the labelling of a source of income affects spending patterns from

Table 6a: Engel Curves for Children's Clothing from Total Expenditure and Child Benefit for Different Quartiles

Dep Var=Exp on Children's Clothing	**N=844**	**N=842**	**N=843**	**N=844**
Quartile	1	2	3	4
Total Exp.	.0535079**	.0195726	.0448657**	.01527 **
	(.0077434)	(.0164162)	(.017481)	(.0057897)
Child Benefit	.424014**	.4714369**	.3403741	1.042765*
	(.1291834)	(.1677886)	(.2761254)	(.4105875)
No. of Children	-210.4625**	-20.97046	37.44815	-110.1499
	(66.67257)	(104.8817)	(174.1443)	(194.9117)
No. of Adults	-197.8831**	-77.52782	-233.5482	-100.2566
	(45.87461)	(115.4676)	(186.2819)	(115.0726)
1987	-106.7603	-25.68603	-252.877 *	-234.1393
	(81.98111)	(86.44269)	(115.0573)	(129.4672)
F Test	8.26**	7.17**	1.17	6.26*

[9] When we carried out the same analysis for milk, we found that the difference in coefficients for total expenditure and child benefit increased with expenditure, but the difference was significant only for the third quartile.

Table 6b: WL Engel Curves for Children's Clothing from Total Expenditure and Child Benefit for Different Quartiles

Dep Var=share Children's Clothing	**N=844**	**N=842**	**N=843**	**N=844**
Quartile	1	2	3	4
Total Exp. (log)	.0010694 (.006327)	-.03149* (.0134106)	-.0046779 (.0127382)	-.0169099** (.0039271)
Child Benefit (log)	.0166039* (.0077639)	.0163039** (.0052629)	.003934 (.0050523)	.0128093** (.0046951)
No. of Children	-.0053627* (.0025459)	.0019481 (.0023738)	.0040601 (.0031143)	-.0000469 (.0026153)
No. of Adults	-.0063097 ** (.0018102)	.0004542 (.0024887)	-.0016527 (.0028288)	.0000316 (.0013751)
1987	-.008141* (.0038974)	-.0021787 (.0028125)	-.0066151 (.0027572)	-.0051201 (.0021315)
F Test	2.00	9.19**	0.37	19.85**

Table 6c: "Non-Linear" WL Engel Curves for Children's Clothing from Total Expenditure and Child Benefit for Different Quartiles

Dep Var=share Children's Clothing	**N=844**	**N=842**	**N=843**	**N=844**
Quartile	1	2	3	4
Total Exp. (log)	-1.96e-06** (5.59e-07)	-1.76e-06** (4.18e-07)	-8.58e-07** (3.02e-07)	-3.64e-07** (5.38e-08)
Child Benefit (log)	-1.129631 (2.053842)	-4.139162 (2.193443)	-2.563451 (4.956524)	-19.37131** (3.528181)
No. of Children	-7.16e-08 (1.12e-07)	5.72e-08 (8.21e-08)	-1.91e-08 (5.27e-08)	-1.62e-08 (2.51e-08)
No. of Adults	-1.17e-07 (9.36e-08)	4.47e-08 (7.06e-08)	-1.50e-07 (6.42e-08)	-5.49e-08 (3.49e-08)
1987	-4.75e-07** (1.62e-07)	-3.23e-08 (9.58e-08)	8.23e-08 (5.76e-08)	-1.62e-08** (2.51e-08)
F Test	0.13	3.14*	1.56	18.37**

that source and it is not the case that "a dollar is a dollar is a dollar". How can we distinguish between these two competing hypotheses? One potential way is if we can find another way of assigning a given source of income within the household, or more particularly to either the father or the mother. The HBS does distinguish between income of the "head of the household" and that of other members of the household. We also know the gender of the head of the household. We assumed that where the gender of the head of household was male this income could be regarded as "husbands income" and the income of the spouse of the head would then be "wife's income". The situation would be reversed where the gender of the head of the household was female. Thus if we observe that spending patterns on children's clothing is independent of whose income it comes from, this will support the labelling hypothesis. If however we observe that such spending patterns are not independent of the person receiving the income, then we will still be unable to distinguish between the two competing hypotheses.

In table 7 we present simple and WL Engel curves for children's clothing out of husband's disposable income and wife's disposable income. We do not carry out the estimation conditional on the number of children since in this case we are not interested in variation due to child benefit.

Taking the simple Engel curve first, the coefficient on wife's income is smaller than the coefficient on husband's income though the difference is not significant.[10] This indicates that there is the same propensity to spend on children's clothing out of husbands income as there is out of wives' income. This is evidence in favour of the labelling view regarding child benefit, since if the higher propensity to spend on children's clothing out of child benefit was due to the fact that it is paid to the mother, then we would expect to see this also reflected in a higher propensity to spend out of wives' (i.e. mothers') incomes.[11] The evidence for the WL Engel curves appears to less clearcut at first sight. For the linear version the coefficient on wives' income is higher and the F test appears to be significant at conventional levels. However, recall that the marginal impact upon the budget share is given by the coefficient deflated by the average value of husbands' (wives') income. Since

[10] Note that we cannot carry out this analysis for total expenditure since we have no way of separately identifying husbands' and wives' expenditure.

[11] The measure of income used here is "disposable income". The results are robust to the use of earned income and also to when we restrict the sample to households where both parents are earning. It is also robust to the inclusion of a dummy variable for labour force participation by the wife.

husbands' income exceeds wives' income the adjusted difference is smaller, though the coefficient on wives' income is still greater (i.e. less negative). The ratio of the (absolute value) of the unadjusted coefficient on husbands' income to that on wives' income is 2.5, while the ratio for the adjusted figure is 1.3. For the non-linear case the wives' coefficient is 0.5 and the relevant F statistic is 0.5. Thus overall the evidence is tentatively supportive of the labelling hypothesis.

Table 7: Engel curves for Children's Clothing out of Husbands' and Wives' Income (N=3373, se in brackets)

Dep Var=Exp on Children's Clothing	**"Simple" Version**	**Dep Var=Share of Children's Clothing**	**Linear Version**	**Non-linear Version**
Husband's Income	.0141541** (.0024871)	**Husband's Income (log)**	-.0070448** (.0016732)	-.101487** (.0032586)
Wife's Income	.0102235** (.003293)	**Wife's Income (log)**	-.0027923** (.0006831)	.5009208** (3.25e-06)
No. of Kids	172.341** (26.24896)	**No. of Kids**	.0044821** (.0008664)	.0090641** (.0017173)
No. of Adults	112.912** (23.78363)	**No. of Adults**	.0009179 (.0007663)	.0125542** (.0017552)
1987	-298.0241** (56.68648)	**1987**	-.0054588** (.0018805)	-.01272** (.0041832)
F Test	0.99	**F Test**	5.87	0.50

Simple tests of the unitary household model by examining expenditure patterns out of husbands and wives income sources have been criticised on the basis that such differences may not reflect differences in preferences but rather differences in relevant prices. For example, husbands and wives relative earned incomes will reflect differing labour supplies which will in turn reflect different opportunity costs of time. Thus, for example, a finding that wives' income is more directed towards, say restaurant meals than husbands' may not reflect different preferences but rather that in those households with higher female incomes the opportunity cost of home prepared meals is higher. Can such a criticism be directed at

our analysis here? If we accept that in those households with relatively higher female incomes that the opportunity cost of female time is higher then since clothes purchasing comes from leisure time, there is a lower probability of the female in those households purchasing children's clothes. Thus the lower propensity to spend on children's clothes out of female income may not reflect preferences, but rather a higher opportunity cost of non-work activities, including shopping. And so the fact that children do relatively better out of child benefit may be explained by the fact that it is paid to the mother rather than the labelling view. Thus overall the evidence here in favour of the labelling view must be tempered by the realisation that different households may face different opportunity costs of leisure and this may lie behind their different consumption patterns. This will certainly be the case if there is not weak separability between goods and leisure (see Browning and Meghir, 1991, for tests of weak separability).

Note also that the evidence in table 8 is not necessarily in favour of the unitary household model since propensities to consume are still different for husbands' and wives' income. However the direction of the difference is evidence in favour of the labelling view when it comes to trying to explain why children appear to do better out of child benefit than total expenditure.

So far we have examined the relationship between spending on goods which are clearly assignable to children and different sources or definitions of income/expenditure. The corollary of our finding that children do better out of child benefit is that adults do worse. Thus we carry out the same exercise for goods which are clearly assignable to adults. Examples of such goods are alcohol and tobacco. However, because of the suspicion over reported consumption of alcohol and tobacco in survey based data it is worthwhile to instead examine adult clothing. For reasons of brevity we will not reproduce all the analysis for adults clothing. Instead we merely redo tables 3, 4 and 5 for adult clothing.

These results are almost the mirror image of the results for children's clothing. The propensity to consume out of total expenditure is well in excess of that to consume out of child benefit and this difference is significant. The WL Engel curves indicate that adult clothing is a luxury out of total expenditure but a necessity out of child benefit. To economise on the number of tables we present, we omit the regressions conditional on the number of children (the results for these specifications are qualitatively similar to those in

table 8, although there is some evidence that the negative effect on adults clothing out of child benefit is larger for bigger families).

Thus there is reasonably strong evidence that the corollary to our main finding of children doing relatively better out of child benefit than out of total expenditure (that adults do relatively worse) holds when we examine adult clothing.

Table 8: Engel curves for Adults' Clothing out of Total Expenditure and Child Benefit (N=3373, se in brackets)

Dep Var=Exp on Adults' Clothing	"Simple" Version	WL Linear Version	WL Non-linear Version
Total Exp	.0787599**	.0152496**	.0246662**
	(.0063549)	(.0020888)	(.0024779)
Child Benefit	-.8550986**	-.0173277**	-3.371823*
	(.3258301)	(.0053196)	(1.617973)
No. of Kids	318.04	.0029413	-.0002919
	(185.1556)	(.0023593)	(.0010345)
No. of Adults	507.0925**	.0080176**	.0108684**
	(125.879)	(.0014838)	(.0008079)
1987	-352.0526**	-.0156663**	-.0124049**
	(128.6005)	(.002282)	(.0020579)
F Test	8.08**	32.77**	4.371823*

3. Does Gender Matter?

So far we have established that there is evidence that children do benefit from child benefit, in the sense that propensities to consume children's clothes are higher from child benefit than from general expenditure. We have also seen that, following examination of expenditure patterns from husbands' and wives' income, it appears that this may be due to the "labelling" effect, as opposed to the fact that child benefit is paid to the mother. We now investigate whether this phenomenon differs according to gender i.e. given that children do benefit from child benefit is this effect more pronounced for boys than for girls.[12]

[12] Behrman, Pollak and Taubman (1986) investigate parental preferences over human capital investments in their children and find no evidence of unequal concern between boys and girls.

In this section we essentially repeat the analysis of section 2 except that now our dependent variable is the ratio of the budget share for boys clothing to that for girls clothing. Thus the dependent variables for our Engel curves are now $\frac{x^h_{cl,b}}{x^b_{cl,g}}$ or equivalently $\frac{w^h_{cl,b}}{w^h_{cl,g}}$. Note that in this case the coefficient on total expenditure will not tell us anything about whether children's clothing is a luxury or a necessity. Instead it tells us how the relative budget shares spent on boys and girls clothing is affected by total expenditure/child benefit. According to the null hypothesis we expect the coefficient on child benefit (and total expenditure) to have values of zero i.e. relative budget shares should be independent of total expenditure.

Table 9: Engel Curves for Ratio of Boys and Girls clothes from Total Expenditure and Child Benefit

Dep Var=Ratio of boys/girls clothes	**N=562**	**(controlling for age of children) N=352**	**N=562**	**(controlling for age of children) N=352**
Total Exp.	8.32e-06 (8.18e-06)	9.21e-06 (.000012)		
Total Exp (log)			.4714604 (.3122338)	.5485223 (.4327099)
Child Benefit	.0004364 (.0004261)	.0005002 (.0005457)		
Child Benefit (log)			1.395316* (.639154)	1.606831 (.8515641)
Num Kids	-.0889813 (.3020991)	.008979 (.5213999)	-.3168154 (.2571815)	-.286389 (.4733954)
Num Adults	-.3199481 (.1634043)	-.4904037* (.2207884)	-.4674579** (.1613335)	-.6797536** (.2349281)
1987	-.1167937 (.2348601)	-.2817255 (.3026689)	.0065406 (.2445768)	-.1448225 (.3142146)
F Test	1.02	0.83	2.56	2.23

In tables 9 we present Engel curves where the dependent variable is the ratio of budget shares (we drop the non-linear version since the denominator of the budget share drops out of the expression for the dependent variable). We restrict our sample to those households where there are equal numbers of boys and girls. We also control for the possibility that different budget shares devoted to boys and girls clothes may be a function of the different ages of boys and girls in a family (e.g. the budget share for a fourteen year old boy may be higher that that for a one year old girl) by only examining households where there are equal numbers of boys and girls in each age category (zero to four and five to fourteen).

These tables throw some light upon two related but also distinct issues. First there is the issue of direct interest to us here i.e. whether the extent to which children do "better" out of child benefit than total expenditure differs according to gender. This we can determine by examining whether the coefficients on total expenditure and child benefit differ. Secondly it gives us some idea of whether boys do better than girls out of general expenditure and/or child benefit. This is determined by whether the coefficients on log total expenditure/child benefit differ from zero.

The answer to the first question is that the difference in the coefficients on total expenditure and child benefit is not statistically significant although the P-value for the case where age is controlled for is around 0.1. So there is some weak evidence that boys may be disproportionately favoured when age is controlled for.

Regarding whether boys or girls do better in general out of total expenditure and/or child benefit for total expenditure, only in one case is the coefficient significantly different from zero (the WL version where age is not controlled for, although the P-value on the significance of this coefficient where age is being controlled for is only just above 0.05). Thus once again there is some evidence of boys doing better. We must remember however that our measure of the extent to which boys do better than girls is the ratio of budget shares on clothes and it is possible that there are compensating differences in budget shares for other goods, but these cannot be detected from our data since they are not assignable goods.

Finally, as a further test of discrimination in favour of one gender or the other, and following the methodology of Deaton (1989), we tested whether the budget share devoted to adult goods (in this case adult clothing and alcohol and tobacco) is influenced by the ratio of boys to girls, controlling for the total number of children in the household. A negative coefficient on the ratio of boys to girls (while simultaneously controlling for the number of

children) indicates less spending on adult goods (and presumably more spending on children's goods) when there is a higher proportion of male children. The coefficient on the ratio of boys to girls is negative and significant for the simple version of the Engel curve and the non-linear version of the WL Engel curve. So, once again, we see some evidence of discrimination in favour of boys.

Table 10: Engel curves for Adults' Clothing out of Total Expenditure and Child Benefit including boy/girl ratio (N=3373, se in brackets)

Dep Var=Exp on Adults' Clothing	"Simple" Version	WL Linear Version	WL Non-linear Version
Total Exp	.0749293**	.0140314**	.0219232**
	(.0073195)	(.0023901)	(.0026057)
Child Benefit	-.9313193*	-.020102**	-3.529919*
	(.4271626)	(.006889)	(1.602169)
No. of Kids	416.4129	.0044367	.0014229
	(252.9125)	(.0029165)	(.0012157)
No. of Adults	586.9565**	.0089959	.0121177
	(164.3585)	(.0017696)	(.0009001)
1987	-329.7912	-.0160084**	-.0098408**
	(165.7749)	(.0027208)	(.0023513)
Boy/Girl	-130.8313*	-.0016844	-.0049068**
	(61.68522)	(.0012682)	(.0015754)

4. Discussion and Conclusions

This paper has examined data from the Irish Household Budget Surveys of 1987 and 1994 to investigate the extent to which children benefit from the payment of child benefit. Patterns of expenditure on children's clothing out of child benefit have been compared with those out of total expenditure and it appears that at the margin a higher share of child benefit is allocated to this assignable good than is the case with total expenditure. We also investigated whether this was due to the labelling of child benefit as a transfer which should be specifically spent on children's goods or whether it was due to the fact that child benefit

is paid to the mother. The evidence on spending patterns on children's goods out of the incomes of the head of the household and his/her spouse indicates no statistically significant difference, suggesting that the success of child benefit is due to its labelling as a payment to be devoted to children, rather than owing to the identity of the recipient. However, this is not conclusive evidence in favour of the labelling view since this may reflect differing prices facing mothers and fathers as opposed to different preferences. We also found that the extent to which children benefited from child benefit was by and large independent of gender although there is some more general evidence of discrimination in favour of boys.

The policy conclusion arising from this analysis is that the specific labelling of state transfers may be important in terms of their targeting, in this case maybe even more important than targeting the recipient of the payment. In this sense it is not the case that "a dollar is a dollar is a dollar". This has implications for other state transfers in such areas as health and education.

However, it is best to be cautious in interpreting these findings. We have taken spending on children's clothes as our "indicator" of child benefit. It is possible that parents allocate expenditure so that spending on say, children's food, at the margin takes up a greater share of total expenditure than of child benefit i.e. they offset spending on different children's goods. Or alternatively that husbands and wives take responsibility for different spheres of children's goods e.g. mothers purchase clothing but fathers pay for school fees and school books. We carried out similar analysis for school fees and voluntary contributions to schools and obtained similar results in terms of higher propensities to spend out of child benefit than total expenditure but the number of recorded observations (given the presence of "free" education) was too small for any robust inference.

A further finding of this paper is that child benefit may not directly combat child poverty, in the sense that it appears that the extent to which children do relatively better out of child benefit is greater amongst better-off families. Once again, this finding should be interpreted with caution. While children in better off families may do relatively better from child benefit than those in poor families this does not imply that children in poor families do not gain from child benefit, nor that it does not alleviate child poverty in these families.

Overall, while the results presented in this paper are relatively tentative, they do suggest that child benefit is successful in that it does help children. Our results also provide some

support for the idea that the labelling of specific benefits may be of use in terms of helping them reach their intended target.

References

Atkinson, A. B., L. Rainwater and T. Smeeding (1995): "Income Distribution in European Countries", in *Incomes and the Welfare State: Essays on Britain and Europe*, (ed. A. B. Atkinson). Cambridge University Press. Cambridge and New York.

Banks, J., R. Blundell and A. Lewbel (1997): "Quadratic Engel Curves and Consumer Demand", *Review of Economics and Statistics*, Vol. 79, No. 4, pp. 527-539.

Behrman, J. R., R. Pollak and P. Taubman (1986): "Do Parents Favour Boys?", *International Economic Review*, Vol. 27, pp. 31-52.

Blundell, R., and A. Duncan (1998): "Kernel Regression in Empirical Microeconomics", *Journal of Human Resources*, Vol. 33, pp. 62-87.

----------., P. Pashardes and G. Weber (1993): "What Do We Learn About Consumer Demand Patterns from Micro Data", *American Economic Review*, Vol. 83, pp. 570-597.

Browning, M., and C. Meghir (1991): "The Effect of Male and Female Labour Supply on Commodity Demands", *Econometrica*, Vol. 59, pp. 925-50.

----------, F. Bourguignon, P-A. Chiappori and V. Lechene (1994): "Incomes and Outcomes: A Structural Model of Intra-Household Allocation", *Journal of Political Economy*, Vol. 102, pp. 1067-96.

Callan, T., B. Nolan, B. Whelan, C. Whelan and J. Williams (1996): *Poverty in the 1990s: Evidence from the Living in Ireland Survey*. Oak Tree Press. Dublin.

Chiappori, P-A., (1992): "Collective Labour Supply and Welfare", *Journal of Political Economy*, Vol. 100, No. 3, pp. 437-467.

Deaton, A., (1989): "Looking for Boy-Girl Discrimination Data in Household Expenditure Data", *World Bank Economic Review*, Vol. 3, pp. 183-210.

Del Boca, D., and C. Flinn (1994): "Expenditure Decisions of Divorced Mothers and Income Composition", *Journal of Human Resources*, Vol. 29, No. 3, pp. 742-61.

Haddad, L., and R. Kanbur (1992): "Intrahousehold Inequality and the Theory of Targetting", *European Economic Review*, Vol. 36, pp. 372-78.

Haveman, R., and B. Wolfe (1995): "The Determinants of Children's Attainments: A Review of Methods and Findings", *Journal of Economic Literature*, Vol. 33, No. 4, pp. 1829-78.

Knox, V., (1996): "The Effects of Child Support Payments on Developmental Outcomes for Elementary School-Age Children", *Journal of Human Resources*, Vol. 31, No. 4, pp. 816-40.

Lewbel, A., (1999): "Consumer Demand Systems and Household Equivalence Scales", in *Handbook of Applied Econometrics, Vol. II: Microeconomics* (ed. M. H. Pesaran and P. Schmidt). Blackwell. Oxford.

Lundberg, S., R. Pollak and T. Wales (1997): "Do Husbands and Wives Pool Their Resources?", *Journal of Human Resources*, Vol. 32, No. 3, pp. 463-480.

O'Neill, D., and O. Sweetman (1998): "Poverty and Inequality in Ireland 1987-1994: A Comparison Using Measures of Income and Consumption", *mimeo.*

Phipps, S., and P. Burton (1998): "What's Mine is Yours? The Influence of Male and Female Incomes on Patterns of Household Expenditure", *Economica*, Vol. 65, pp. 599-613.

Rottman, D., (1994): "Allocating Money Within Households: Better off Poorer?", in *Poverty and Policy in Ireland*, (ed. B. Nolan and T. Callan). Gill and McMillan. Dublin.